

WHAT IS CLAIMED IS:

1. A semiconductor device comprising:

an SOI substrate including a supporting substrate, an oxide film layer and an
5 SOI (Semiconductor-On-Insulator) layer which are sequentially deposited; and

a MIS (Metal Insulator Semiconductor) transistor including a gate insulating film formed on said SOI layer, a gate electrode formed on said gate insulating film and a source/drain active layer formed in said SOI layer so as to be adjacent to a portion under said gate electrode,

10 wherein at least a portion of said supporting substrate which is located under said MIS transistor is removed, to form a hollow portion.

2. The semiconductor device according to claim 1,

wherein said hollow portion is surrounded by four end faces of said supporting
15 substrate, each of said four end faces being exposed in said hollow portion and being a (111) plane.

3. A semiconductor device comprising:

an SOI substrate including an oxide film layer serving as a bottom of said
20 semiconductor device and an SOI (Semiconductor-On-Insulator) layer which are sequentially deposited;

a MIS (Metal Insulator Semiconductor) transistor including a gate insulating film formed on said SOI layer, a gate electrode formed on said gate insulating film and a source/drain active layer formed in said SOI layer so as to be adjacent to a portion under
25 said gate electrode;

an interlayer insulating film covering said MIS transistor; and
a supporting substrate bonded to said interlayer insulating film.

4. The semiconductor device according to claim 1, further comprising
5 a metal film covering a surface of said supporting substrate including an end
face exposed in said hollow portion, and a portion of said oxide film layer which is
exposed in said hollow portion.

5. The semiconductor device according to claim 4, further comprising
10 a contact plug extending through said oxide film layer and electrically
connecting said source/drain active layer of said MIS transistor and said metal film to
each other.

6. The semiconductor device according to claim 1,
15 wherein said supporting substrate and said SOI layer have crystal directions
different from each other.

7. The semiconductor device according to claim 3, further comprising
a metal film covering a surface of said oxide film layer.

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8. The semiconductor device according to claim 7, further comprising
a contact plug extending through said oxide film layer and electrically
connecting said source/drain active layer of said MIS transistor and said metal film to
each other.

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9. The semiconductor device according to claim 3,
wherein said supporting substrate and said SOI layer have crystal directions
different from each other.